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Provider reactions to an automated telephone tool to screen and monitor depression in a safety net population

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Abstract

As practice recommendations and guidelines accumulate, the healthcare system continues to depend on clinician heroes to work harder and faster to meet increasing demands. Population health management requires healthcare to move towards systems based designs, and move away from depending on individual patient visits. However, the implementation of a change in care delivery has to be endorsed by providers or it is doomed to fail, and frontline providers can singularly provide critical insight into the successes and failure of the system. The Diabetes-Depression Care-management Adoption Trial (DCAT) is evaluating an automated telephonic assessment tool for depression in a primary care setting. The technology tool was designed to shift routine depression screening and symptom monitoring from providers to machines and used the information to automatically alert providers of those patients in need of follow-up. Therefore, providers can have more time dedicated to proactive, compassionate care. This article first proposes a conceptual framework for evaluating provider responses to such system-based redesign of healthcare delivery. The conceptual framework focuses on barriers to providing recommended care, the success of the information system implementation, and the role of cultural and organizational characteristics.

This framework is used to evaluate survey responses from 12 providers who provided care to 1406 patients in the DCAT trial. The survey included 7 respondents from sites using the technology tool, and 5 from sites not using technology tool across the professional spectrum (nurse practitioner, registered nurse, social worker, and licensed vocational nurse). The results showed that providers at sites using the technology tool more frequently spent time providing care (e.g., monitoring adherence to treatment, monitoring side effects, and adjusting the treatment plan), whereas providers at sites not using the technology tool more frequently spent time on identifying patients' care needs (e.g., routine screening and assessing for depression episodes). Outcome expectancy

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and satisfaction was significantly higher in the sites with the technology tool, whereas knowledge was significantly higher in the control arm. Self-efficacy and familiarity were not different between the two groups.
The conceptual model creates a framework for understanding the impact of healthcare delivery system redesign on providers. Preliminary survey results show that providers with access to the automation technology spent less time on routine processes of care, and more time on patient-centered care. Furthermore, system change may result in changes in provider confidence and satisfaction without impacting skills or beliefs.

Keywords: healthcare engineering; healthcare systems; depression, automated healthcare delivery; provider evaluation framework

1. Introduction

Healthcare delivery systems are looking for ways to provide patient-centered care and improve quality for large, chronically ill populations in an efficient, economical manner, especially as enrolled populations are set to expand dramatically with healthcare reform. Population health management requires healthcare to move towards systems based designs, and move away from depending on individual patient visits.

Other industries use technology to automate standardized protocols and routine procedures, producing highly reliable and easily scalable results that better accommodate the consumer. By leaving routine and standardized work to technology, worker productivity improves, allowing health professionals to focus on work that requires their expertise and judgment. However, healthcare has not yet benefited from this application of technology.

Decades of research on evidence-based medicine have generated numerous practice recommendations and guidelines. However, as they pile up, we still depend on clinician heroes to work harder despite evidence that it is impossible for physicians to deliver all recommended care to their patients: in a typical practice, primary care physicians would require an estimated 7.4 hours per day to fulfil all the preventive care recommendations of the US Preventive Services Task Force.[1]

As healthcare systems attempt to move towards systems-based practices and population health management, the implementation of a change in care delivery has to be endorsed by providers or it is doomed to fail. Buy-in is important for successful implementation, and the frontline providers can singularly provide critical insight into the successes and failures of the system.[2]

The Diabetes-Depression Care-management Adoption Trial (DCAT) is evaluating an automated telephone assessment tool for depression in a primary care setting. This tool pioneers the automation of depression screening and monitoring in a safety net population of patients with diabetes. It was designed to shift routine depression screening and symptom monitoring from providers to machines. The information the machines collected would automatically alert providers of those patients in need of follow-up. Therefore, providers can have more time dedicated to proactive, compassionate care. This paper focuses on provider survey responses to the implementation of the automated tool. These preliminary results form one facet of a larger mixed methods evaluation to determine how the automated assessment tool affected provider barriers to providing recommended depression care, and understand provider perception of the tool's implementation.

Nomenclature

PHQ	Patient Health Questionnaire
DCAT	Diabetes-Depression Care-management Adoption Trial